

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (currently amended) An excimer or molecular fluorine laser system, comprising:
- a laser chamber filled with a gas mixture at least including a halogen-containing species and a buffer gas;
 - a plurality of electrodes within the laser chamber connected to a discharge circuit energizing the gas mixture;
 - a laser resonator defining a beam path and including the laser chamber and a line-narrowing and/or line-selection package generating an output beam with a bandwidth less than 1 pm;
 - the laser resonator including a grating element having a dielectric highly reflective (HR) coating formed thereon, the grating element including a plurality of grooves, the grating element selecting a narrow band from a broader spectral distribution to continue along said beam path after being incident upon said grating element, the grating element dispersing ~~away from the beam path~~ outer portions of said spectral distribution away from the beam path.

Claim 2. (cancelled).

3. (currently amended) An excimer or molecular fluorine laser system, comprising:
- a laser chamber filled with a gas mixture at least including a halogen-containing species and a buffer gas;
 - a plurality of electrodes within the laser chamber connected to a discharge circuit energizing the gas mixture;
 - a laser resonator including the laser chamber and a line-narrowing and/or line-selection package generating an output beam with a bandwidth less than 1 pm;
 - the laser resonator including a grating element having a dielectric anti-reflective (AR) coating formed thereon, the grating element including a plurality of grooves, the grating element selecting a narrow band from a broader spectral distribution to continue along said beam path

after being incident upon said grating element, the grating element dispersing ~~away from the beam path~~ outer portions of said spectral distribution away from the beam path.

Claim 4. (cancelled).

5. (previously amended) The laser system of Claim 3, wherein the grating element is disposed in front of a resonator reflector element.

6. (original) The laser system of Claim 5, wherein the resonator reflector element is highly reflective.

7. (original) The laser system of Claim 5, wherein the resonator reflector element is partially reflective as an output coupler.

8. (currently amended) An excimer or molecular fluorine laser system, comprising:
a laser chamber filled with a gas mixture at least including a halogen-containing species and a buffer gas;

a plurality of electrodes within the laser chamber connected to a discharge circuit energizing the gas mixture;

a laser resonator including the laser chamber and a line-narrowing and/or line-selection package generating an output beam with a bandwidth less than 1 pm;

the laser resonator including a grism element for dispersing the beam, said grism element having a grating surface and a prism portion, the grating surface including a plurality of grooves, the grism element selecting a narrow band from a broader spectral distribution to continue along said beam path after being incident upon said grism element, the grism element dispersing ~~away from the beam path~~ outer portions of said spectral distribution away from the beam path.

9. (currently amended) The ~~grism element~~ laser system of Claim 8, having a dielectric AR coating formed ~~thereon~~ on the grism element.

11. (currently amended) The ~~grism element~~ laser system of Claim 10, wherein a dielectric HR coating is formed on a rear surface of the prism portion.
12. (currently amended) The ~~grism element~~ laser system of Claim 9, wherein a dielectric AR coating is formed on a rear surface of the prism portion.
13. (currently amended) The ~~grism element~~ laser system of Claim 12, wherein a dielectric HR coating is formed on the grating surface.
14. (currently amended) The ~~grism element~~ laser system of Claim 12, wherein a dielectric AR coating is formed on the grating surface.
15. (currently amended) The ~~grism element~~ laser system of Claim 8, having a dielectric HR coating formed ~~thereon~~ on the grism element.
16. (currently amended) The ~~grism element~~ laser system of Claim 15, wherein the dielectric HR coating is formed on the grating surface.
17. (currently amended) The ~~grism element~~ laser system of Claim 15, wherein the dielectric HR coating is formed on a rear surface of the prism portion.

Claim 18. (cancelled).

19. (previously amended) The laser system of Claim 8, wherein the grism element has a highly reflecting surface for reflecting the beam as a highly reflective resonator reflector.
20. (original) The laser system of Claim 19, wherein the grating surface is the highly reflecting surface, and the grating surface faces the laser discharge chamber.

21. (original) The laser system of Claim 19, wherein the grating surface is the highly reflecting surface, and the prism portion faces the laser discharge chamber.
22. (original) The laser system of Claim 19, wherein a rear surface of the prism portion is the highly reflecting surface, and the grating surface faces the laser discharge chamber.
23. (previously amended) The laser system of Claim 8, wherein the grism element is disposed in the laser resonator in front of a highly reflective resonator reflector.
24. (original) The laser system of Claim 23, wherein the grating surface has a dielectric AR coating formed thereon.
25. (currently amended) The laser ~~resonator~~ system of any of Claims 19, 21 or 23-24, wherein a beam entry/exit surface of the prism portion has a dielectric AR coating formed thereon.
26. (currently amended) The laser ~~resonator~~ system of Claim 25, wherein the grating surface has a dielectric HR coating formed thereon.
27. (currently amended) The laser ~~resonator~~ system of any of Claims 19-21, wherein the grating surface has a dielectric HR coating formed thereon.
28. (previously amended) The laser system of any of Claims 8, 19, 21 or 23, wherein the grism element is oriented such that the prism portion serves as a beam expander.
29. (previously amended) The laser system of Claim 8, wherein the grism element is disposed in the laser resonator in front of a partially reflective resonator output coupler.
30. (previously amended) The laser system of Claim 29, wherein the grating surface has a dielectric AR coating formed thereon.

31. (previously amended) The laser system of any of Claims 29-30, wherein a beam entry/exit surface of the prism portion has a dielectric AR coating formed thereon.
32. (previously amended) The laser system of Claim 8, wherein the grism is disposed within the laser resonator to serve as an output coupling element.
33. (previously amended) The laser system of Claim 32, wherein the grating surface faces the laser discharge chamber and has a dielectric AR coating formed thereon.
34. (previously amended) The laser system of Claim 32, wherein an entry exit surface of the grism faces the discharge chamber and has a dielectric AR coating formed thereon.
35. (previously amended) The laser system of Claim 32, wherein the grating surface faces the laser discharge chamber and is partially reflective such that the grating surface serves as a resonator reflector surface.
- B' 36. (previously amended) The laser system of Claim 32, wherein a rear surface of the prism portion faces the discharge chamber and is partially reflecting such that the rear surface of the prism portion serves as a resonator reflector surface.
37. (previously amended) The laser system of any of Claims 8 or 19-24, further comprising a beam expander between the discharge chamber and the grism element.
38. (previously amended) The laser system of Claim 37, wherein the beam expander includes a plurality of DUV and/or VUV transparent prisms.
39. (previously amended) The laser system of Claim 38, wherein said plurality of prisms each has at least one dielectric AR coating formed thereon.
40. (previously amended) The laser system of Claim 37, further comprising an aperture disposed between the discharge chamber and the beam expander.

41. (previously amended) The laser system of Claim 37, further comprising an etalon within the resonator for further line-narrowing and/or line-selection.

42. (currently amended) The ~~grating element laser system~~ of any of Claims 1 or 3, ~~further comprising wherein the grating element further comprises~~ a bulk substrate having a plurality of grooves formed directly therein, wherein the dielectric coating is formed directly over said substrate and plurality of grooves.

43. (currently amended) The ~~grating element laser system~~ of any of Claims 1 or 3, ~~further comprising wherein the grating element further comprises~~ a bulk substrate having a ruled epoxy layer formed thereon having a plurality of grooves, wherein the dielectric coating is formed directly over said ruled epoxy layer.

44. (previously amended) The laser system of any of Claims 1 or 3, wherein the grating element further comprises a bulk substrate having said plurality of grooves formed directly therein.

45. (previously amended) The laser system of any of Claims 1 or 3, wherein the grating element further comprises a bulk substrate having a ruled epoxy layer formed thereon having said plurality of grooves.

46. (currently amended) An excimer or molecular fluorine laser system, comprising:
a laser chamber filled with a gas mixture at least including a halogen-containing species and a buffer gas;
a plurality of electrodes within the laser chamber connected to a discharge circuit energizing the gas mixture;
a laser resonator including a line-narrowing and/or line-selection package generating a laser beam,
the laser resonator including a grism element formed from a DUV and/or VUV transparent material, said grism having a prism portion and a grating surface, the grating surface

including a plurality of grooves, wherein the surface closest to the discharge chamber has an AR coating formed thereon, the grism element selecting a narrow band from a broader spectral distribution to continue along said beam path after being incident upon said grism element, the grism element dispersing ~~away from the beam path~~ outer portions of said spectral distribution away from the beam path.

47. (previously amended) The laser system of Claim 46, wherein said surface closest to said discharge chamber is said grating surface.

48. (previously amended) The laser system of Claim 47, wherein a rear surface of said prism portion has a HR coating formed thereon.

49. (previously amended) The laser system of Claim 47, wherein a beam entry/exit surface of said prism portion has an AR coating formed thereon, wherein said laser system further comprises a highly reflective resonator reflector after said grism.

50. (previously amended) The laser system of Claim 47, wherein a rear surface of said prism portion is partially reflecting such that said rear surface serves as a beam output coupler of the laser system.

51. (previously amended) The laser system of Claim 46, wherein said surface closest to said discharge chamber is a beam entry/exit surface of said prism portion.

52. (previously amended) The laser system of Claim 51, wherein said grating surface has a HR coating formed thereon.

53. (previously amended) The laser system of Claim 51, wherein said grating surface has an AR coating formed thereon, wherein said laser system further comprises a highly reflective resonator reflector after said grism.

54. (previously amended) The laser system of Claim 51, wherein said grating surface is partially reflecting such that said grating surface serves as a beam output coupler of the laser system.

55. (currently amended) An excimer or molecular fluorine laser system, comprising:
a laser chamber filled with a gas mixture at least including a halogen-containing species and a buffer gas;

a plurality of electrodes within the laser chamber connected to a discharge circuit energizing the gas mixture;

a laser resonator including a line-narrowing and/or line-selection package generating a laser beam,

the laser resonator including a grism element formed from a DUV and/or VUV transparent material, said grism having a prism portion and a grating surface, the grating surface including a plurality of grooves, wherein the surface closest to the laser chamber is partially reflecting and serves as a beam output coupler of said laser system, the grism element selecting a narrow band from a broader spectral distribution to continue along said beam path outside the laser resonator after being incident upon said grism element, the grism element dispersing ~~away from the beam path outside the laser resonator~~ outer portions of said spectral distribution away from the beam path.

56. (previously amended) The laser system of Claim 55, wherein said partially reflecting surface is said grating surface.

57. (previously amended) The laser system of Claim 55, wherein said partially reflecting surface is a rear surface of said prism portion and said outcoupled beam exits said grism through said grating surface.

58. (previously added) The laser system of any of 8, 46 or 55, further comprising a bulk substrate having said plurality of grooves formed directly therein, wherein the dielectric coating is formed directly over said substrate and plurality of grooves.

59. (previously added) The laser system of any of Claims 8, 46 or 55, further comprising a bulk substrate having a ruled epoxy layer formed thereon having said plurality of grooves, wherein the dielectric coating is formed directly over said ruled epoxy layer.

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60. (previously added) The laser system of any of Claims 8, 46 or 55, further comprising a bulk substrate having said plurality of grooves formed directly therein.

61. (previously added) The laser system of any of Claims 8, 46 or 55, further comprising a bulk substrate having a ruled epoxy layer formed thereon having said plurality of grooves.
